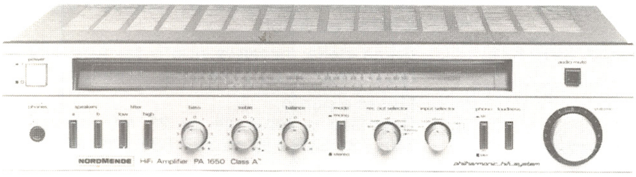
NORDMENDE

Zentralkundendienst



Service-Information

PA 1650 A 982.162 H

Technische Daten

Geräteart:
Class A Stereo-Vollverstärker

Stromversorgung:
220 V – 50 Hz

Leistungsaufnahme:
390 W

Ausgangsleistung:
2 x 75 W Sinus an 8 Ω

Klirrfaktor:
Bei 70 W: 0,0008 %

Geräuschspannungsabstand:
TA: MC: 70 dB
MM: 90 dB
TB: 100 dB

Übersprechdämpfung:
60 dB

Frequenzumfang:
TA 20 Hz – 20 kHz ± 1 dB
TB 5 Hz – 100 kHz ± 1,5 dB

Eingangsempfindlichkeit/Impedanz:
TA: MM: 2,5 mV/ 47 kΩ
MC: 250 µV/100 Ω
TB: 150 mV/ 47 kΩ

Klangregelung:
Bass ± 10 dB bei 100 Hz
Höhen ± 10 dB bei 10 kHz

Abmessungen:
B 440 mm
H 94 mm
T 298 mm

Gewicht:
6,5 kg

Technical data

Type of set:
Stereo pre-main amplifier

Power supply:
220 V – 50 Hz

Power consumption:
390 W

Output power:
2 x 75 W sinus at 8 Ω

Total harmonic distorsion:
At 70 W: 0,0008 %

Signal to noise ratio at rated power output (weighted):
TA: MC: 70 dB
MM: 90 dB
TB: 100 dB

Crosstalk between channel:
60 dB

Frequency response:
Phono 20 Hz – 20 kHz ± 1 dB
Aux/tape play 5 Hz – 100 kHz ± 1,5 dB

Input sensitivity/impedance:
Phono MM: 2,5 mV/ 47 kΩ
MC: 250 µV/100 Ω
Aux/tape play: 150 mV/ 47 kΩ

Tone control:
Bass ± 10 dB at 100 Hz
Treble ± 10 dB at 10 kHz

Dimensions:
W 440 mm
H 94 mm
D 298 mm

Weight:
6,5 kg

Dati tecnici

Tipo di apparecchio:
Preamplificatore-amplificatore stereofonico

Alimentazione:
220 V – 50 Hz

Consumo:
390 W

Potenza di uscita:
2 x 75 W sinus su 8 Ω

Distorsione armonica:
A 70 W: 0,0008 %

Rapporto segnale/disturbo:
TA: MC: 70 dB
MM: 90 dB
TB: 100 dB

Diafonia:
60 dB

Curva di risposta:
Giradischi 20 Hz – 20 kHz ± 1 dB
Magnetofono 5 Hz – 100 kHz ± 1,5 dB

Sensibilita/impedenza:
Giradischi: AM: 2,5 mV/ 47 kΩ
BM: 250 µV/100 Ω
Magnetofono: 150 mV/ 47 kΩ

Tono:
Grave ± 10 dB à 100 Hz
Acuto ± 10 dB à 10 kHz

Dimensioni:
L 440 mm
A 94 mm
P 298 mm

Peso:
6,5 kg

Diese Angaben und Hinweise sind ausschließlich für den Service des Fachhändlers bestimmt · Änderungen vorbehalten
These instructions are for service dealers only · Subject to modification
Questi dati ed istruzioni sono destinati esclusivamente al servizio assistenza clienti · Con riserva di modifiche

Abgleichanweisung

1. Verstärker-Endeinstellung

Vorbereitung:
SVR 731, 732, 831, 832 auf linken Anschlag drehen. Kein Eingangssignal. Lautstärkeregler auf min. Digitalvoltmeter an R 786 und R 886.

Vor dem Einstellen Gerät ca. 10 Minuten in Betrieb nehmen.

Einstellung:
Mit SVR 731, SVR 732 und SVR 831, SVR 832 auf 20 mV einstellen.

2. LED-Austeuerungsanzeige-Einstellung

Vorbereitung:
SVR 501, 502, 601, 602 auf mechanische Mitte stellen. Ohne Eingangssignal muß jeweils das „0 W-LED“ an der linken Seite aufleuchten (bei dieser Voreinstellung können bis zu 3 LED’s links aufleuchten).

2.1 Bezugspegeleinstellung
(zweite LED von rechts)

Vorbereitung:
1-kHz-Sinussignal auf Eingang (AUX) geben. Verstärkerausgang so einstellen, daß die Verstärkerausgangsspannung 25,2 – 25,6 V beträgt (80 W).

Einstellung:

a) Die „80-W-LED“ mit SVR 501, 601 zum Aufleuchten bringen. Signal um 0,4 dB verringern; die „80-W-LED“ muß erlöschen.
b) Signal um 2 dB (von Wert a.) erhöhen. Alle LED’s müssen aufleuchten.

2.2 Bezugspegeleinstellung
(zweite LED links)

Mit Abschwächer Signal um 26 dB (von Wert b.) verringern. Verstärkerausgang auf 1,5 V (0,3 W) einstellen. Mit SVR 502, 602, die „0,3-W-LED“ zum Aufleuchten bringen. Signal um 1 dB verringern, die „0,3-W-LED“ muß erlöschen.

Alignment instructions

1. Amplifier final adjustment

Preparation:
Turn SVR 731, 732, 831, 832 to the left hand stop. No input signal. Volume control to min. Digital voltmeter to R 786 and R 886.

Before adjustment allow the amplifier to warm up for approximately 10 minutes.

Adjustment:
Adjust SVR 731, SVR 732 and SVR 831, SVR 832 for 20 mV.

2. LED Level control indicator adjustment

Preparation:
Set SVR 501, 502, 601, 602 to mechanical centre. Without an input signal the “0 W-LED” at the left hand side must illuminate (with this pre-adjustment up to 3 LED’s on the left can illuminate).

2.1 Reference level adjustment
(second LED from right)

Preparation:
Apply a 1 kHz sinewave signal to the AUX input. Adjust the amplifier output for an output voltage of 25,2 – 25,6 V (80 W).

Adjustment:

a) Bring the “80 W LED” to illumination with SVR 501, 601. Decrease the signal by 0,4 dB; the “80 W LED” must extinguish.
b) Increase the signal by 2 dB (from value a.). All LED’s must illuminate.

2.2 Reference level adjustment
(second LED from left)

With a signal attenuated by 26 dB (from value b.). Set the amplifier output to 1,5 mV (0,3 W). Bring the “0,3 W LED” to illumination with SVR 502, 602. Attenuate the signal by 1 dB, the “0,3 W LED” must extinguish.

Norme di taratura

1. Messa a punto finale dell’amplificatore

Operazioni preliminari:
Portare SVR 731, 732, 831 e 832 in posizione d’arresto di fine corsa sinistro. Senza segnale d’entrata. Regolare il comando del volume su minimo. Collegare un voltmetro digitale a R 786 ed R 886.

Prima della messa a punto far funzionare l’apparecchio durante circa 10 minuti.

Messa a punto:
Regolare la tensione su 20 mV mediante SVR 731, SVR 732 ed SVR 831, SVR 832.

2. Messa a punto del display di modulazione LED

Operazioni preliminari:
Portare SVR 501, 502, 601 e 602 in posizione meccanica media. Senza segnale d’entrata il “0 W-LED” sulla parte sinistra deve illuminarsi (con questa preregolazione si possono illuminare sul lato sinistro fino a 3 LED).

2.1 Messa a punto del livello di riferimento
(secondo LED da destra)

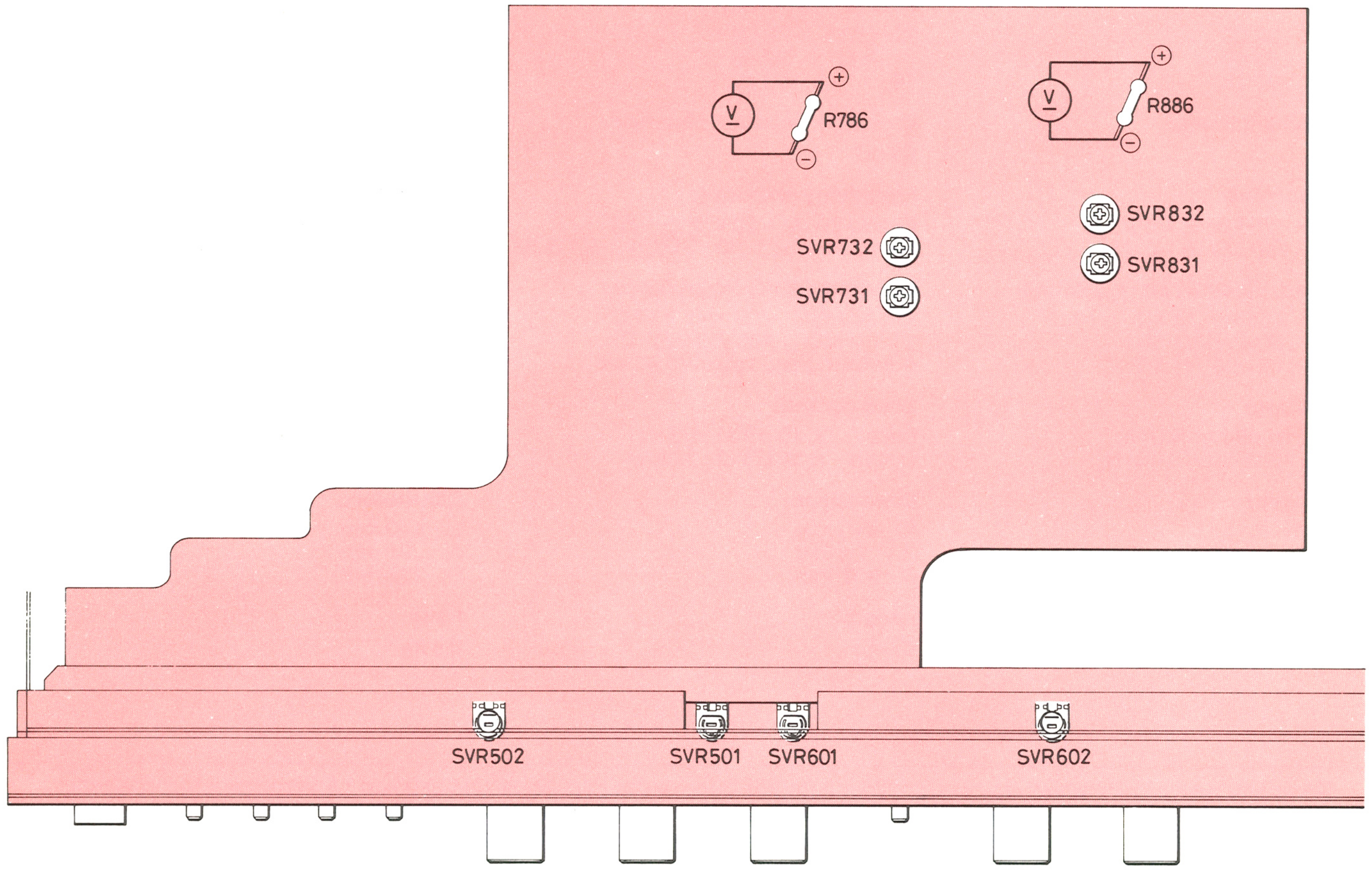
Operazioni preliminari:
Introdurre un segnale sinusoidale di 1 kHz nell’entrata AUX. Regolare l’uscita dell’amplificatore in modo tale che la tensione d’uscita dell’amplificatore sia di 25,2 – 25,6 V (80 W).

Messa a punto:

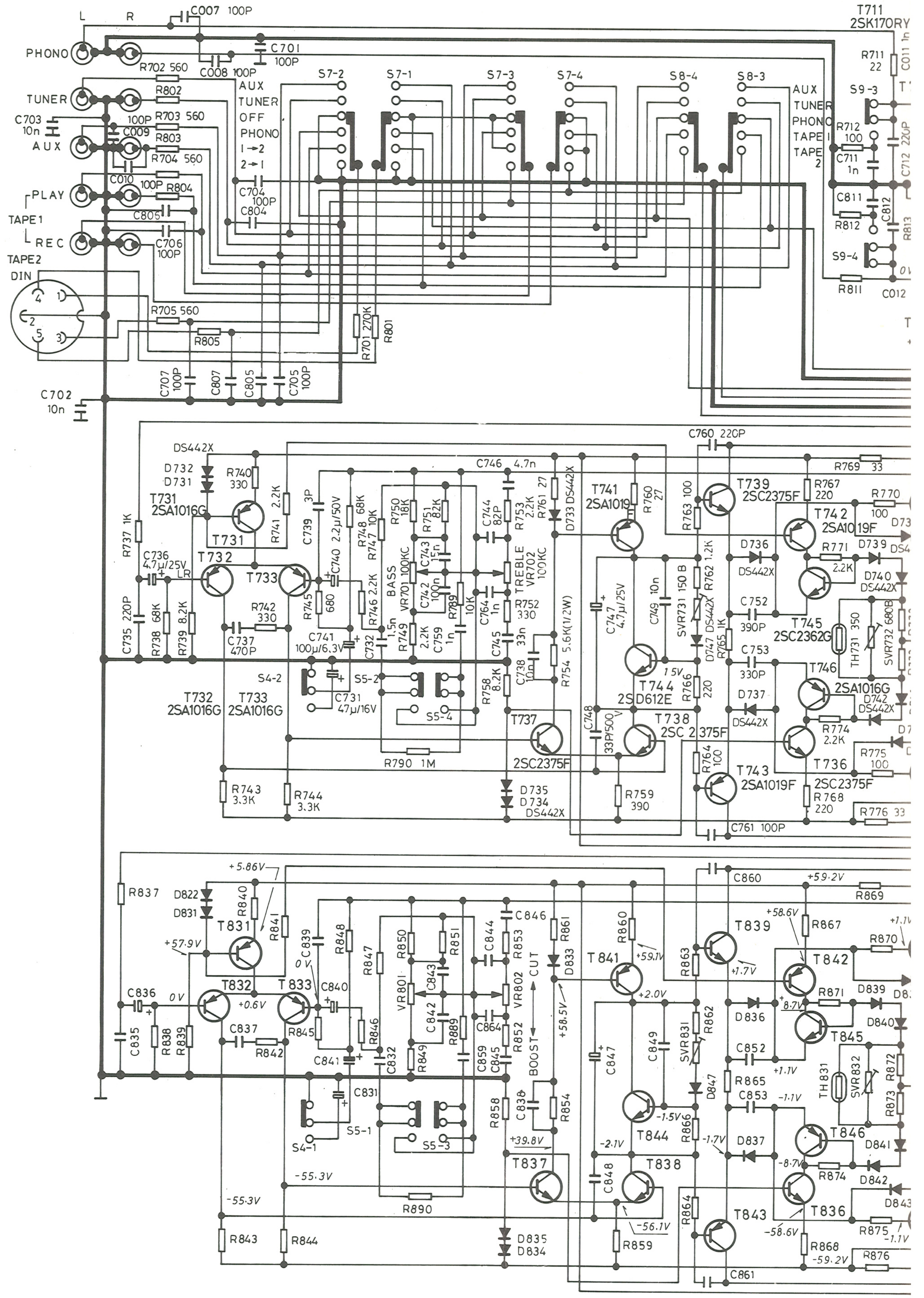
a) Portare la luccicare il LED 80 W mediante SVR 501, 601. Ridurre il segnale di 0,4 dB; il LED 80 W deve spegnersi.
b) Aumentare il segnale di 2 dB (dal valore a). Tutti i LED devono illuminarsi.

2.2 Messa a punto del livello di riferimento
(secondo LED da sinistra)

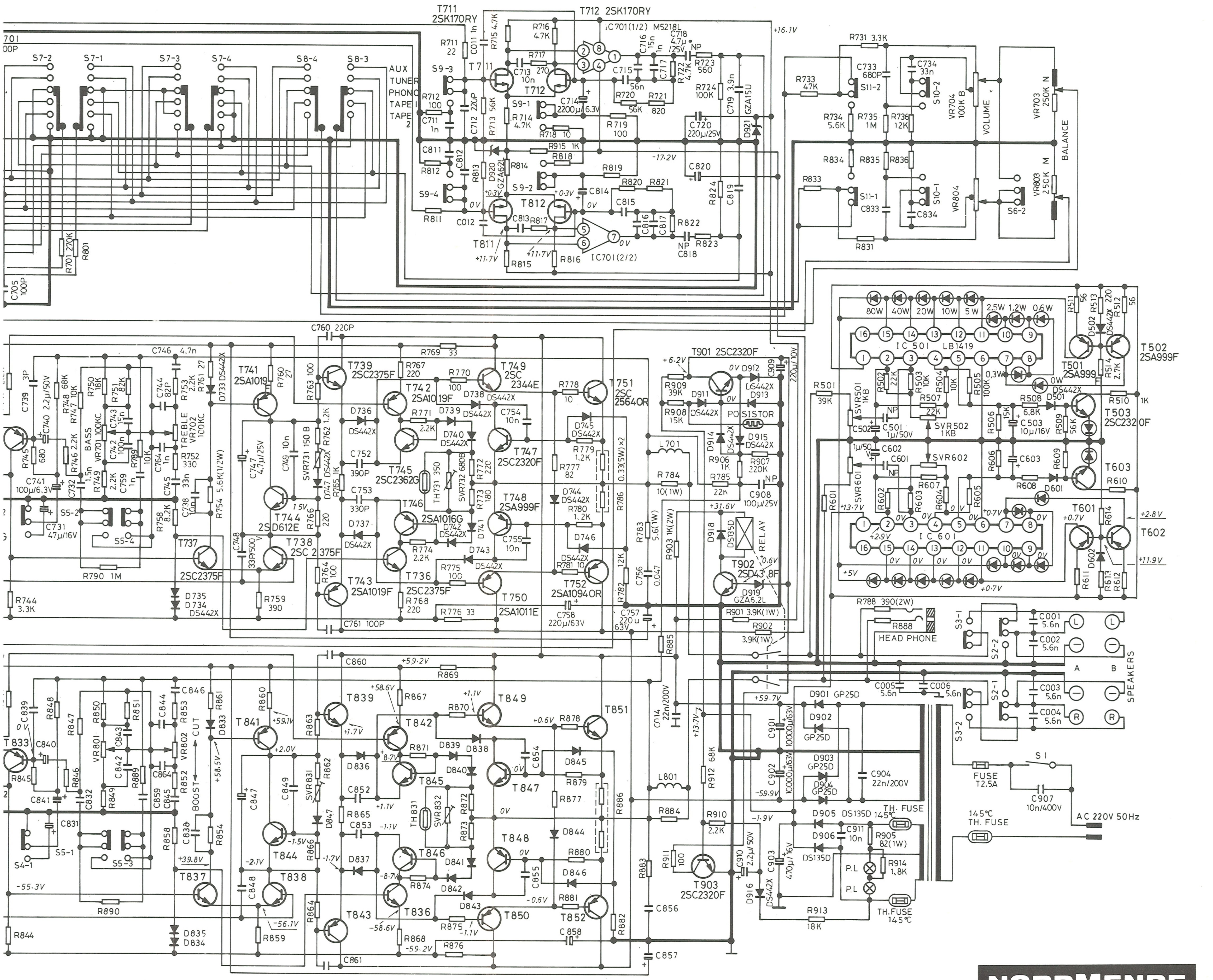
Ridurre il segnale di 26 dB (dal valore b) mediante un’attenuatore. Regolare l’uscita dell’amplificatore su 1,5 V (0,3 W). Portare a luccicare il LED 0,3 W. Ridurre il segnale di 1 dB. Il LED 0,3 W deve spegnersi.

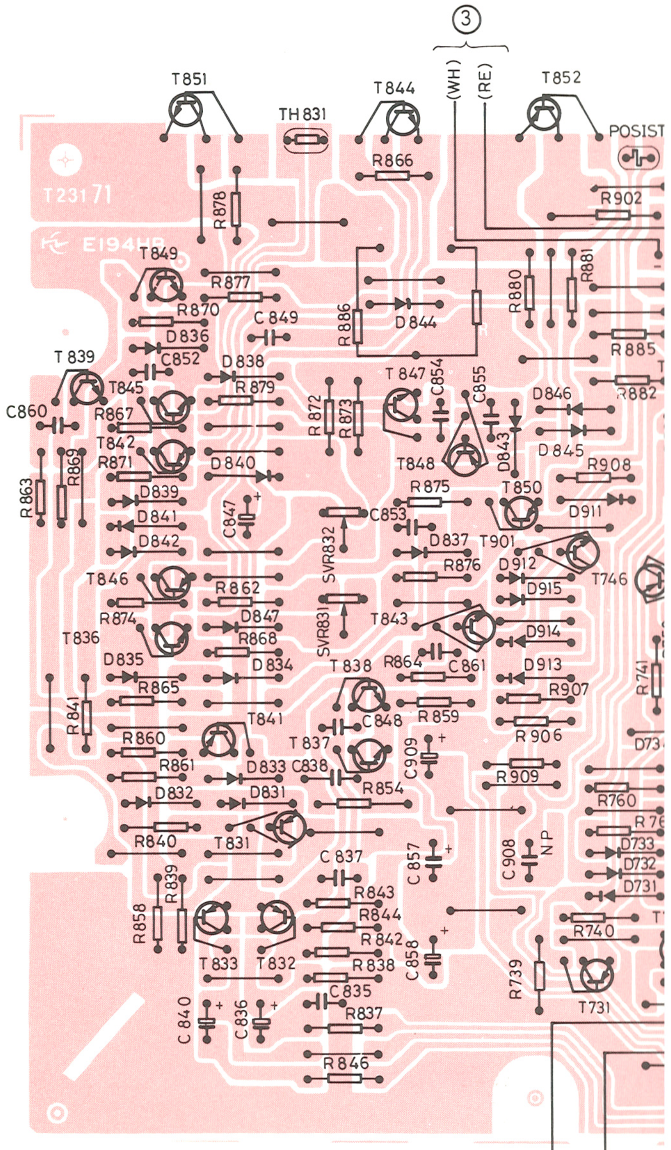


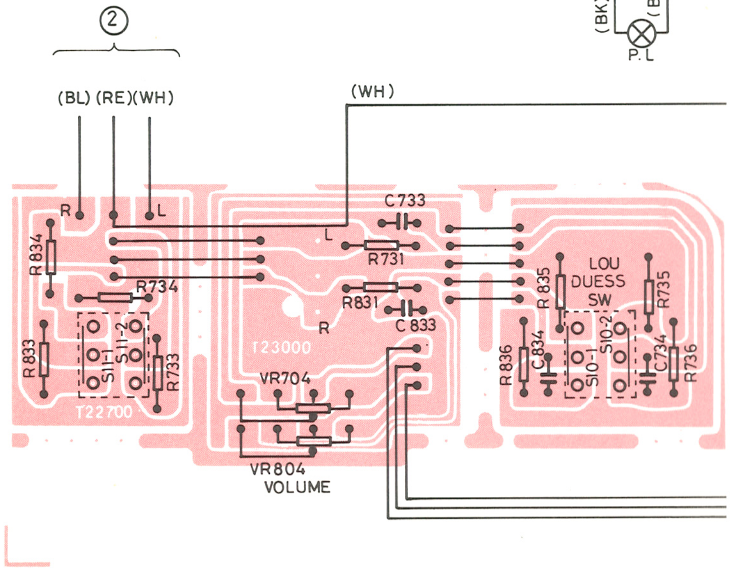
V
R786
V
R886
SVR832
SVR831
SVR732
SVR731
SVR502
SVR501
SVR601
SVR602



PHONO
L
R
TUNER
AUX
PLAY
TAPE1
REC
TAPE2
DIN
C007 100P
C701 100P
C008 100P
R702 560
R802
R703 560
R803
R704 560
R804
R705 560
R805
C703 10n
C702 10n
S7-2
S7-1
S7-3
S7-4
S8-4
S8-3
AUX
TUNER
OFF
PHONO
1→2
2→1
TAPE 1
TAPE 2
T711 2SK170RY
R711 22
S9-3
S9-4
R712 100
C711 1n
R701 270K
R801
C707 100P
C807
C805
C705 100P
DS442X
D732
D731
T731 2SA1016G
T732
T733
T732 2SA1016G
T733 2SA1016G
R737 1K
R740 330
R741 2.2K
C736 4.7μ/25V
C735 220P
R738 68K
R739 8.2K
C737 470P
R742 330
R745 680
R746 2.2K
C740 2.2μ/50V
C741 100μ/6.3V
C739 3P
C731 47μ/16V
S4-2
S5-2
S5-4
BASS
VR701 100KC
TREBLE
VR702 100KC
C746 4.7n
R753 2.2K
R761 27
R754 5.6K(1/2W)
R752 330
R758 8.2K
C738 10μ
T737 2SC2375F
R790 1M
R743 3.3K
R744 3.3K
D735
D734
DS442X
T741 2SA1019
R760 27
C747 4.7μ/25V
C749 10n
SVR731 150 B
T744 2SD612E
T738 2SC2375F
C748 33P/500
R759 390
R763 100
R762 1.2K
R765 1K
D747
R766 220
R764 100
T743 2SA1019F
T739 2SC2375F
R767 220
R769 33
R770 100
T742 2SA1019F
D736 DS442X
R771 2.2K
D739
D740 DS442X
C752 390P
T745 2SC2362G
TH731 350
SVR732 680B
C753 330P
T746 2SA1016G
D742 DS442X
D737 DS442X
R774 2.2K
T736 2SC2375F
R775 100
R768 220
R776 33
C760 220P
C761 100P
R837
D822
D831
R840
R841
T831
+5.86V
+57.9V
T832
T833
C836
C835
R838
R839
C837
R842
R845
C839
C840
C841
R846
R848
R847
VR801
R850
C843
C842
R851
C844
R889
R849
C832
C831
S4-1
S5-1
S5-3
R890
R853
R852
VR802
C864
C859
C845
C846
R861
D833
CUT
BOOST
R858
C838
R854
+58.5V
+39.8V
T837
D835
D834
R843
R844
-55.3V
T841
R860
C847
C849
SVR831
R862
T844
T838
C848
R859
R863
T839
+58.6V
R867
C860
+59.2V
R869
R870
T842
R871
D839
D836
D840
T845
C852
R865
C853
TH831
SVR832
R872
R873
D847
R866
D837
T846
D841
R874
D842
T843
R864
T836
R868
-59.2V
R875
R876
C861
D843
-56.1V
-58.6V


T711 2SK170RY
T712 2SK170RY
IC701(1/2) M5218L
IC701(2/2)
T811
T812
AUX
TUNER
PHONO
TAPE 1
TAPE 2
S7-2
S7-1
S7-3
S7-4
S8-4
S8-3
S9-3
S9-1
S9-2
S9-4
VOLUME
BALANCE
VR703 250K N
VR803 250K M
VR704 100K B
VR804
S11-2
S11-1
S10-2
S10-1
S6-2
BASS
TREBLE
VR701 100KC
VR702 100KC
VR801
VR802
CUT
BOOST
T739 2SC2375F
T749 2SC2344E
T751 2SC2564OR
T742 2SA1019F
T741 2SA1019
T744 2SD612E
T738 2SC2375F
T737 2SC2375F
T745 2SC2362G
T746 2SA1016G
T747 2SC2320F
T748 2SA999F
T743 2SA1019F
T736 2SC2375F
T750 2SA1011E
T752 2SA1094OR
T901 2SC2320F
T902 2SD438F
T903 2SC2320F
POSISTOR
RELAY
IC501 LB1419
IC601
80W
40W
20W
10W
5W
2.5W
1.2W
0.6W
0.3W
0W
T501 2SA999
T502 2SA999F
T503 2SC2320F
T601
T602
T603
HEAD PHONE
SPEAKERS
A
B
FUSE T2.5A
S1
AC 220V 50Hz
TH. FUSE
145°C TH. FUSE
TH.FUSE 145°C
P.L
D901 GP25D
D902 GP25D
D903 GP25D
D904 GP25D
D905 DS135D
D906 DS135D
T839
T849
T841
T842
T851
T833
T845
T847
T846
T848
T844
T837
T838
T836
T843
T850
T852
S3-1
S2-2
S2-1
S3-2
S5-2
S5-4
S5-1
S5-3
S4-1


③
(WH)
(RE)
T851
TH831
T844
T852
POSIST
T23171
E1941
(BK)
(BK)
P.L

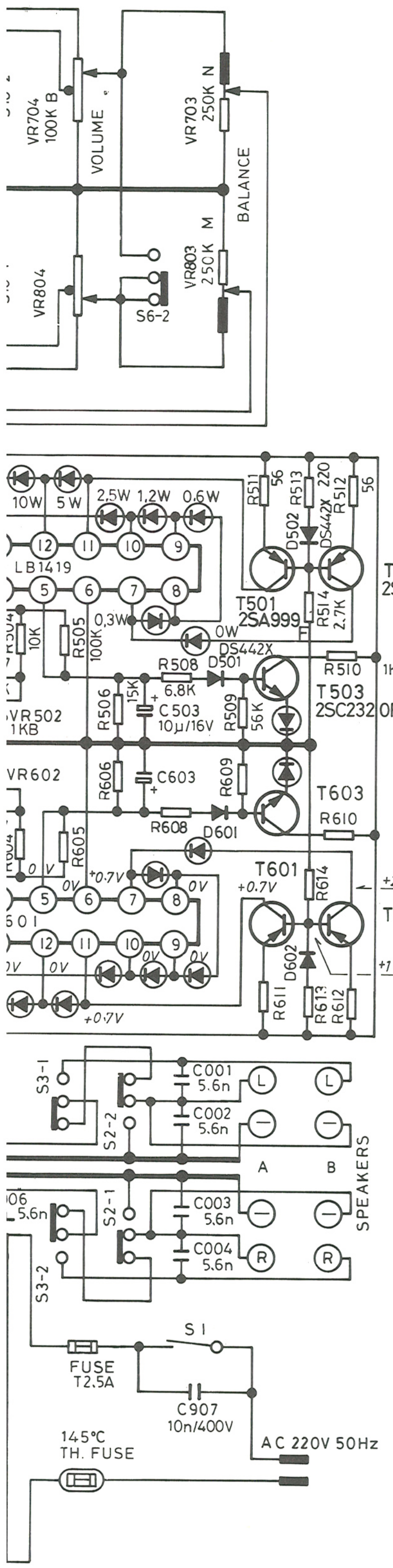

②
(BL) (RE)(WH)
(WH)
R
L
T23000
T22700
LOU DUESS SW
VR704
VR804 VOLUME

Leiterplatte Regler und Er

NORDMENDE

PA 1650 A 982.162 H

KD 187.442


VR704 100K B
VOLUME
VR703 250K N
BALANCE
VR804
VR803 250K M
S6-2
T502 2SA999F
T501 2SA999
T503 2SC2320F
T603
T601
T602
LB1419
S3-1
S2-2
S2-1
S3-2
C001 5.6n
C002 5.6n
C003 5.6n
C004 5.6n
SPEAKERS
A
B
S1
FUSE T2.5A
C907 10n/400V
145°C TH. FUSE
AC 220V 50Hz

Schalterfunktionen

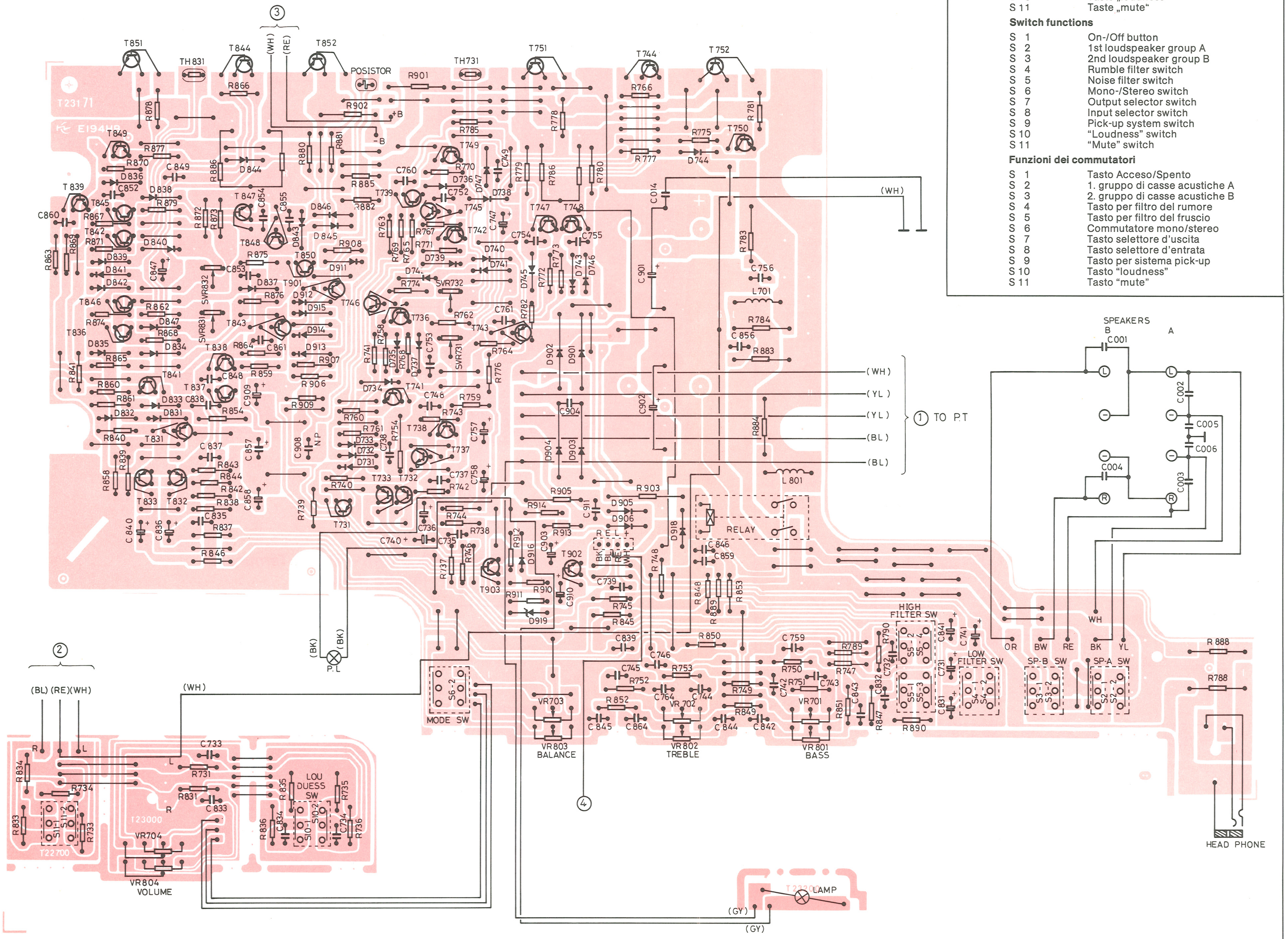
S 1	Ein-/Aus-Taste
S 2	1. Lautsprechergruppe A
S 3	2. Lautsprechergruppe B
S 4	Rumpelfilter-Taste
S 5	Rauschfilter-Taste
S 6	Mono-/Stereo-Schalter
S 7	Ausgang-Wahlschalter
S 8	Eingang-Wahlschalter
S 9	Tonabnehmersystem-Taste
S 10	Taste „loudness“
S 11	Taste „mute“

Switch functions

S 1	On-/Off button
S 2	1st loudspeaker group A
S 3	2nd loudspeaker group B
S 4	Rumble filter switch
S 5	Noise filter switch
S 6	Mono-/Stereo switch
S 7	Output selector switch
S 8	Input selector switch
S 9	Pick-up system switch
S 10	"Loudness" switch
S 11	"Mute" switch

Funzioni dei commutatori

S 1	Tasto Acceso/Spento
S 2	1. gruppo di casse acustiche A
S 3	2. gruppo di casse acustiche B
S 4	Tasto per filtro del rumore
S 5	Tasto per filtro del fruscio
S 6	Commutatore mono/stereo
S 7	Tasto selettore d'uscita
S 8	Tasto selettore d'entrata
S 9	Tasto per sistema pick-up
S 10	Tasto "loudness"
S 11	Tasto "mute"


③
(WH)
(RE)
T851
TH831
T844
T852
POSISTOR
R901
TH731
T751
T744
T752
T231 71
E194
R902
T849
T839
C860
T847
T848
T850
T901
T746
T736
T743
T747
T748
T750
RELAY
(WH)
(YL)
(YL)
(BL)
(BL)
① TO P.T
L701
L801
SPEAKERS
B
A
C001
C002
C003
C004
C005
C006
HIGH FILTER SW
LOW FILTER SW
SP-B SW
SP-A SW
OR
BW
RE
BK
YL
WH
R888
R788
HEAD PHONE
MODE SW
VR703 BALANCE
VR802 TREBLE
VR801 BASS
②
(BL) (RE)(WH)
(WH)
(BK)
(BK)
P.L
LOUDNESS SW
VR704
VR804 VOLUME
T23000
T22700
④
LAMP
(GY)
(GY)

NORDMENDE

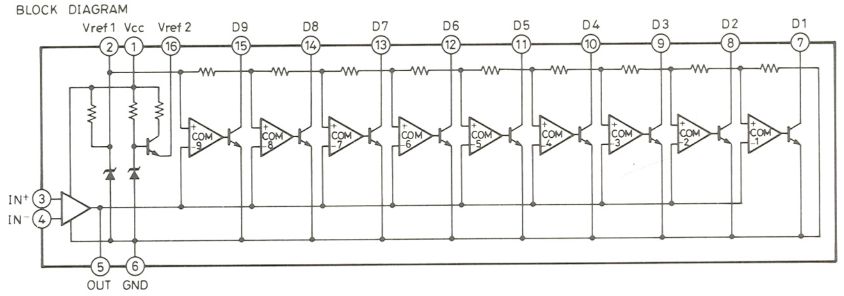
PA 1650 A 982.162 H

KD 187.442

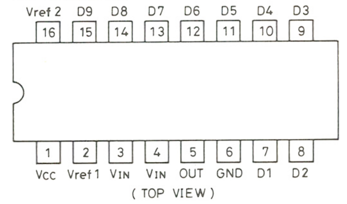
Leiterplatte Regler und Endverstärker — *P.C.B. Controls and power amplifier* — Piastra comandi e amplificatore finale

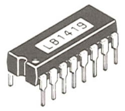
LB1419 (9 Digit Level Meter)

BLOCK DIAGRAM

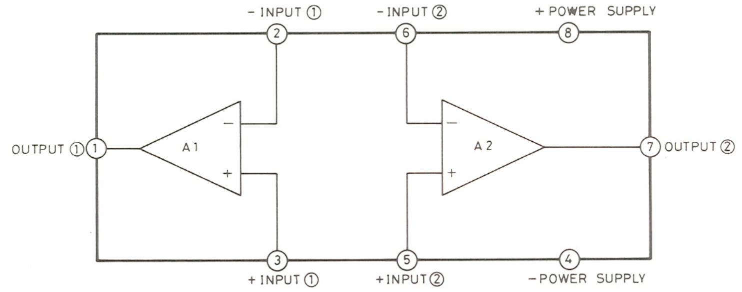

Vref 1
Vcc
Vref 2
D9
D8
D7
D6
D5
D4
D3
D2
D1
COM
IN+
IN−
OUT
GND

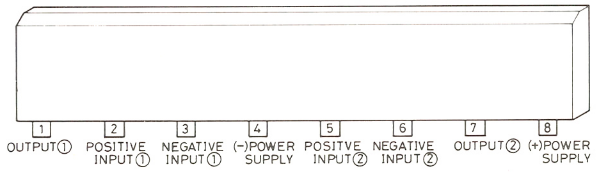
PIN CONNECTION


Vref 2
D9
D8
D7
D6
D5
D4
D3
16
15
14
13
12
11
10
9
1
2
3
4
5
6
7
8
Vcc
Vref 1
VIN
VIN
OUT
GND
D1
D2
(TOP VIEW)

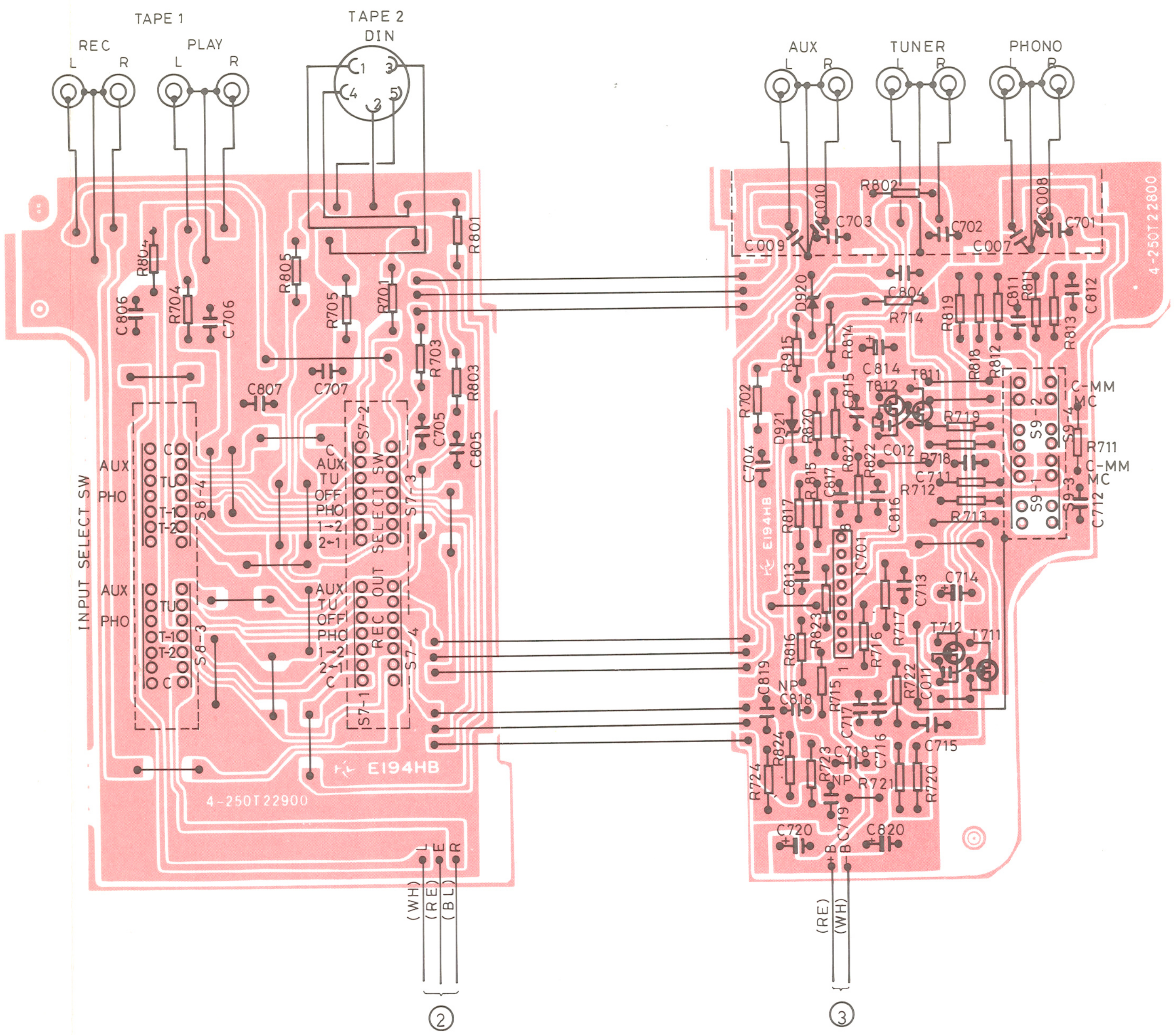


M5218L (Dual Low Noise Operation Amplifier)

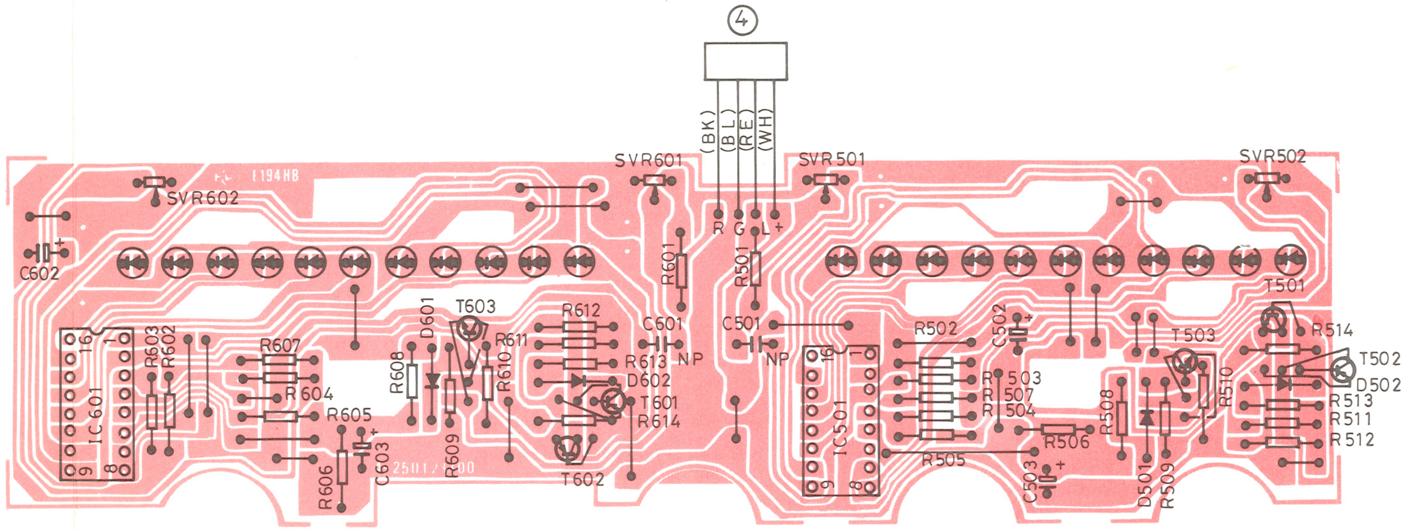

− INPUT ①
− INPUT ②
+ POWER SUPPLY
OUTPUT ①
A 1
A 2
OUTPUT ②
+ INPUT ①
+ INPUT ②
− POWER SUPPLY


OUTPUT①
POSITIVE INPUT①
NEGATIVE INPUT①
(−)POWER SUPPLY
POSITIVE INPUT②
NEGATIVE INPUT②
OUTPUT②
(+)POWER SUPPLY

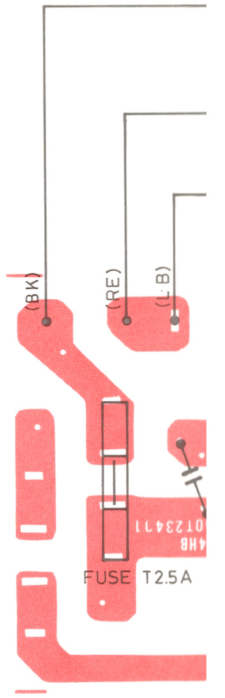
IC-Schaltungen
IC diagrams
Schema circuiti integrati


TAPE 1
REC
PLAY
L
R
TAPE 2
DIN
AUX
TUNER
PHONO
INPUT SELECT SW
REC OUT SELECT SW
AUX
TU
OFF
PHO
1→2
2→1
E194HB
4-250T22900
4-250T22800
C-MM
MC
(WH)
(RE)
(BL)
②
③

Leiterplatten Buchsen — *P.C.B. Terminals*
Piastra prese

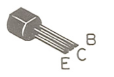

④
(BK)
(BL)
(RE)
(WH)
SVR601
SVR602
SVR501
SVR502
IC601
IC501
E194HB

Leiterplatte Ausgangsleistungsanzeige
P.C.B. Output level — Piastra output level

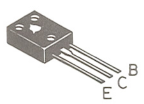

(BK)
(RE)
(L B)
FUSE T2.5A

Leiterp
P.C.
Piastra

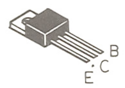
T731 732 733 746
T8 31 832 833 846) - - - - - 2SA1016
T745 845 - - - - - 2SC2362
T748 848 - - - - - 2SA999
T747 847 901 903 - - - - - 2SC2320



T744 844 - - - - - - - - - - - 2SD612



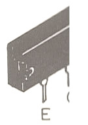
T749 849 - - - - - - - - - 2SC2344



T736 737 738 739
T836 837 838 839

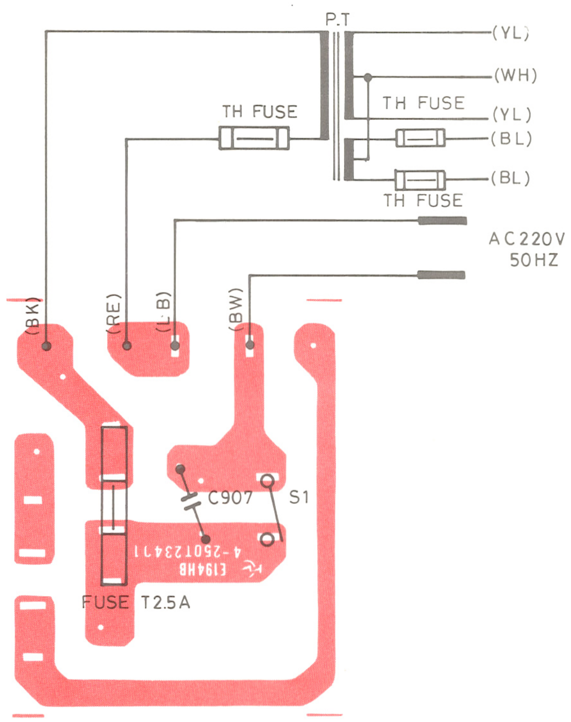
T741 742 743
T841 842 843) - -
T902

T751 851 - - - - -
T752 852 - - - - -

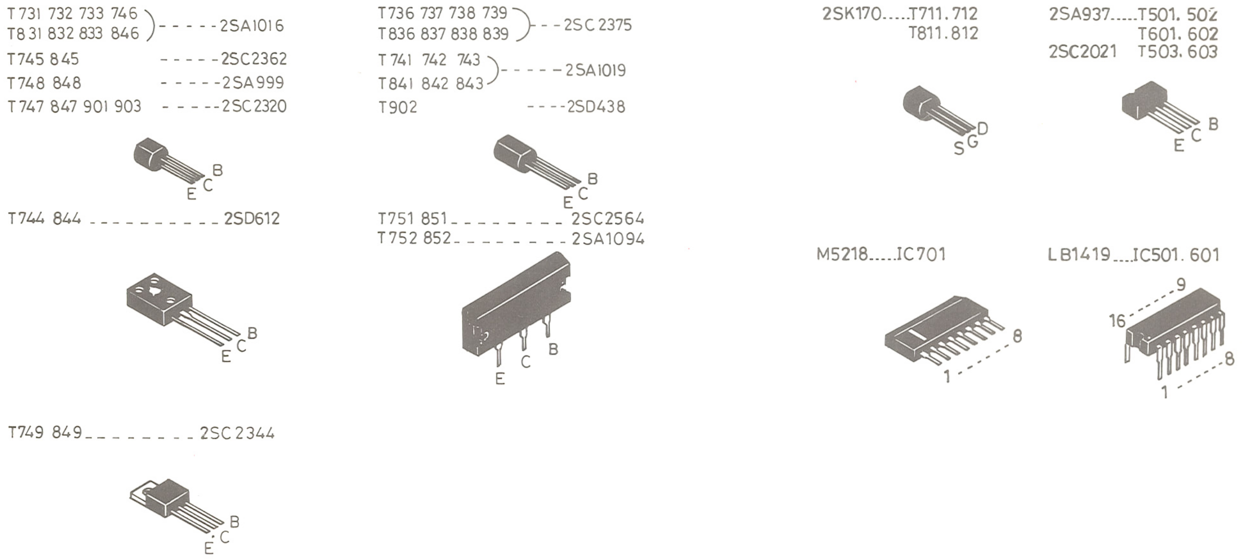


Transisto
Transisto
Contrasseg

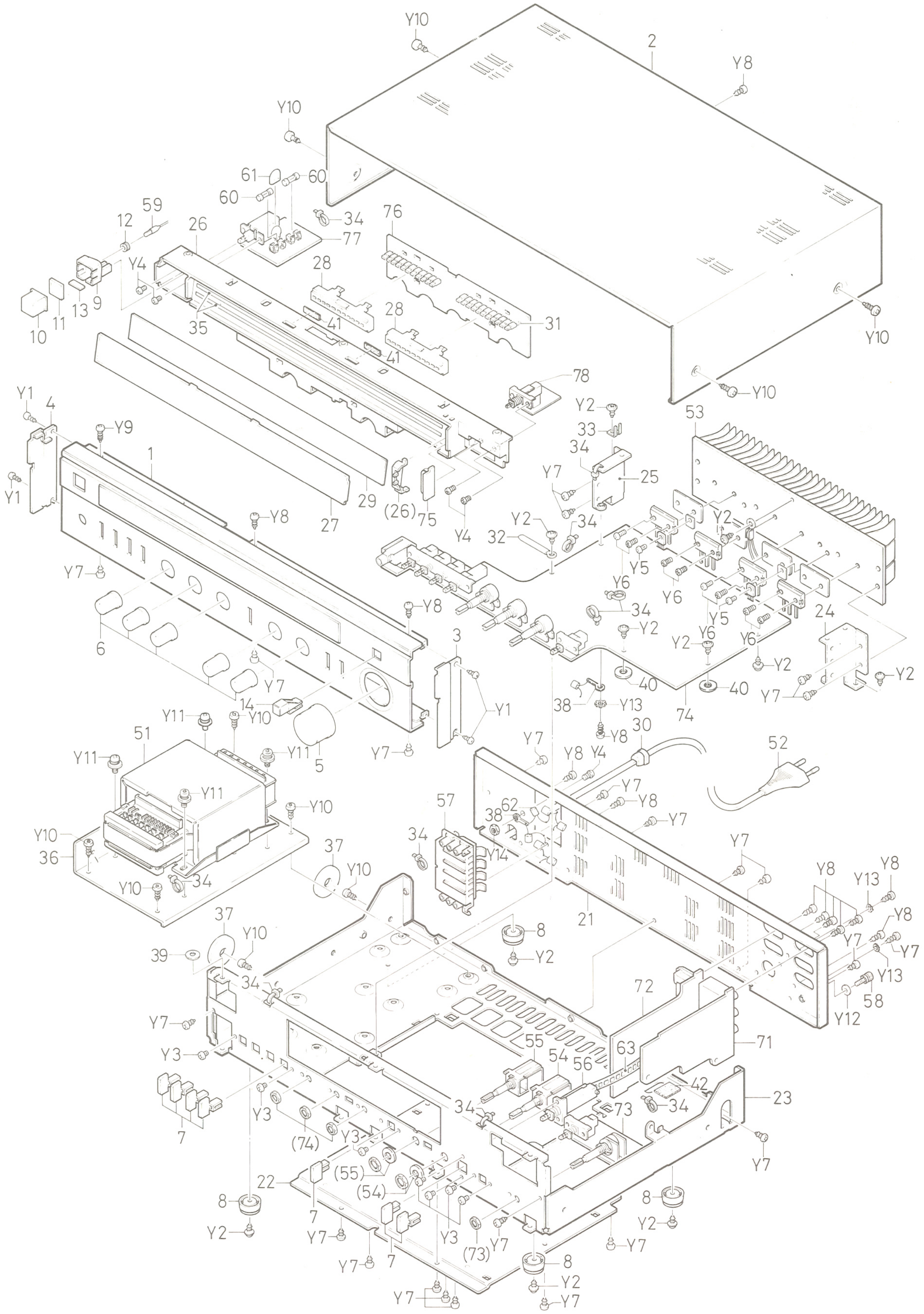
4-250T22800
M
14
T502
D502
513
511
512


P.T
(YL)
(WH)
TH FUSE
TH FUSE
(YL)
(BL)
(BL)
TH FUSE
AC220V
50HZ
(BK)
(RE)
(LB)
(BW)
C907
S1
4-250T23411
E1948B
FUSE T2.5A

Leiterplatte Netzschalter
P.C.B. Power switch
Piastra interruttore di rete


T731 732 733 746
T831 832 833 846
2SA1016
T745 845 2SC2362
T748 848 2SA999
T747 847 901 903 2SC2320
E C B
T744 844 2SD612
E C B
T749 849 2SC2344
E C B
T736 737 738 739
T836 837 838 839
2SC2375
T741 742 743
T841 842 843
2SA1019
T902 2SD438
E C B
T751 851 2SC2564
T752 852 2SA1094
E C B
2SK170.....T711.712
T811.812
S G D
2SA937.....T501.502
T601.602
2SC2021 T503.603
E C B
M5218.....IC701
1 8
LB1419....IC501.601
9 16 1 8

Transistor- und IC-Anschlüsse
Transistor and IC connections
Contrassegni del semiconduttore


Y10
2
Y8
Y10
61
60
60
59
12
26
34
77
76
28
Y4
13
9
11
10
35
41
28
41
31
Y10
78
Y1
4
Y9
1
Y2
33
34
53
Y7
25
29
(26)
75
27
Y8
Y2
34
Y4
32
Y2
Y7
Y5
Y6
Y6
34
Y5
24
6
Y8
3
Y2
Y6
Y6
Y2
Y2
40
40
Y7
Y7
14
Y10
Y1
38
Y13
74
Y11
51
Y8
30
52
Y11
Y11
5
Y7
Y7
Y8
Y4
Y7
Y8
Y11
Y10
57
62
38
Y7
Y10
36
34
Y14
37
Y10
Y10
34
21
Y7
Y8
Y13
Y8
Y8
37
Y10
8
Y2
Y7
Y7
39
34
72
Y13
58
Y12
Y7
71
Y3
55
54
56
63
42
23
Y3
34
73
34
(74)
Y3
Y7
7
22
(55)
(54)
8
Y2
7
Y7
Y7
7
Y3
(73)
Y7
8
Y2
Y7
8
Y2
Y7
Y7

Explosionszeichnung — *Exploded diagram* — Disegno posizione